



2014 Digest

The Edinburgh International Science Festival is back, and so is the Beltane Public Engagement Network's digest of events!

The Festival runs from the 5th until the 20th April. As usual, there is a wide-reaching programme that can be accessed in full at <http://www.sciencefestival.co.uk/>. With this bulletin, we bring you a selection of the events involving the Beltane partner universities.

Bookings can be made online, by phoning the Booking Hotline (0844 557 2686), or in person, by paying a visit to the Edinburgh Festival Fringe Shop (180 High Street, Edinburgh, EH1 1QS), or directly at the venue.

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N.B. We have done our best to make this list comprehensive, but we may have accidentally missed your show. If you spot an omission, please let us know by emailing info@beltanetwork.org.

Heriot-Watt University Events for Adults

From Deep Sea to Deep Space

This year's Festival photography exhibition showcases the brilliant world of fluorescence and bioluminescence, and in this complimentary event, Prof Rory Duncan and Dr Paul Dalgarno of Heriot-Watt University take us on a hands-on journey through fluorescent microscopy. Light emitting molecules from coral and jellyfish have had a huge impact on biological sciences, allowing us to visualise this complex environment in microscopic scale. Explore fluorescent microscopy's role in developments in diseases, drugs and our understanding of life itself in this presentation with interactive examples.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/from-deep-sea-to-deep-space>

Methodical Frog Hopping

Good problem-solvers have been shown to have greater success in life and Dr Thusha Rajendran and fellow researchers from Edinburgh's Heriot-Watt University want to find out why this is and how these skills emerge. Based on the theory that physical interaction can improve our problem-solving skills, participants of all ages are encouraged to find out more about this idea and take part in an interactive, movement-based computer game that explores problem-solving behaviour.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/methodical-frog-hopping>

Techno-Threads and Future Fashion

From embroidered circuits to 3D-printed jewellery, new technology is cropping up in our shoes, dresses and fashion accessories. Gaze down the runway at the future of fashion in this show and installation. Explore the world of interactive wearables and mingle with local and international designers to tunes from our live DJ. Designs will include multiple 3D-printed outfits by Janne Kyttänen and Annie Shaw, Creative Directors of 3D Systems, the largest 3D printing company in the world, and creations from CuteCircuit's Francesca Rosella, high end fashion designer of choice for Katy Perry. Lynsey Calder will also showcase the latest in smart costumes developed at Heriot-Watt University.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/techno-threads-and-future-fashion>

Making Sense of Astronomy

How can we improve communication of astronomy to the deaf community? By creating better BSL for the science, that's how! A ground-breaking Scottish project has done just that, creating over 90 new signs; from signs for each of the planets, to signs for concepts such as black holes and red giants. Join Dr Audrey Cameron of the Scottish Sensory Centre, Gary Quinn of Heriot Watt University and Tania Johnstone of the Royal Observatory Edinburgh to find out how the signs have been developed and see the signs in action through astronomy activities. This event will be BSL interpreted.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/making-sense-of-astronomy>

Living Lights

Living Lights photographic exhibition reveals how emission of light by living organisms is used for a variety of reasons, including fireflies who use periodic flashing to attract mates; dinoflagellates that make the sea sparkle at night; anglerfish whose bioluminescent lures attract prey and squid that expel luminescent clouds to repel predators.

The exhibition will introduce fluorescence and phosphorescence in species such as corals, and also illustrate how scientists' research on bioluminescence and fluorescence is being put to good use in cancer research, tracking disease progression, detecting infection, searching for new life, tracking movements, improving aeronautical designs and developing innovative lighting technologies.

Learn about these fascinating developments and more as we take you on a journey through some of the greatest light shows on Earth.

<http://www.sciencefestival.co.uk/whats-on/categories/exhibition/living-lights>

Party Hard! The Maths of Connections

How many guests need to come to a party to guarantee at least five will know one another or at least five will be mutual strangers? Host Prof Keith Ball, Scientific Director of the International Centre for Mathematical Sciences, talks to Dr Colva Roney-Dougal, Senior Lecturer in Pure Mathematics at the University of St Andrews, about the mathematics of connections; from friendship, through marriage to the spread of disease. Along the way Colva will show how infinity plays some very peculiar tricks and discover some unexpected links between mathematicians and Hollywood stars.

Presented by the International Centre for Mathematical Sciences.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/party-hard-the-maths-of-connections>

Science at the Heart of Things Art Trail

We put 'Science at the HeART of Summerhall' with a series of specially curated exhibitions and installations showcasing the work of artists inspired by science. Summerhall curator Paul Robertson brings together Bigert & Bergström, David Burrows of Plastique Fantastique, Jessica Lloyd-Jones, Michel Paysant, Silas Parry and a group exhibition entitled '26/04/86', featuring works by Norrie Harman, Rebecca Appleby, Dean Kemp, Greg Townend (who have created works inspired by their understanding of the Chernobyl disaster) and The Bone Library. The Science Festival's science-art trail complements these with works by Prof Helen Storey, Will Nash, Sean Dooley, Richard Firth, Hugh Turvey, Helen Denerley, Fergus Dunnet, Botanica Mathematica, Tim Vincent Smith and Alan Brown. Pick up a copy of our special Summerhall brochure and see our website for details, and explore the heart of science!

In association with Heart Fine Art and Summerhall.

<http://www.sciencefestival.co.uk/whats-on/categories/exhibition/science-at-the-heart-of-things>

The Simpsons and their Mathematical Secrets

Join best-selling author and broadcaster Simon Singh as he explores how the mathematically gifted writers of this TV cartoon have smuggled mathematical concepts into their storylines. Discover how The Simpsons has brought everything from calculus to geometry, from pi to game theory, and from infinitesimals to infinity to life in unusual and entertaining ways.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/the-simpsons-and-their-mathematical-secrets>

Cabaret of Dangerous Ideas

From writing, via epigenetics and evolution to 3D printing, the history of scientific endeavour is marked out by daring discoveries and notions that have been both the catalyst for great advances in the human story and the cause of considerable disaster. Hosted by Susan Morrison, broadcaster, comedian and director of *Previously...*, Scotland's History Festival, this cabinet of curiosities aims to provoke debate and explore challenging perspectives as well as raising questions around some of the dangerous ideas of the present and future.

In association with *Previously...* Scotland's History Festival.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/cabaret-of-dangerous-ideas>

What Scientists Read

What DO scientists read? And what role does literature play in contemporary scientific thought and practice? Drawing on results from the ongoing What Scientists Read project, acclaimed author Alastair Reynolds and BBC New Generation Thinker Dr Sarah Dillon will be joined by two of the project's interviewees to discuss scientists' reading habits. Submit your 'bookshelfies' in advance to info@whatscientistsread.com and join the discussion!

<http://www.sciencefestival.co.uk/whats-on/categories/talk/what-scientists-read>

Where are My Carbon Atoms?

This interactive exhibition explains why carbon capture, utilization and storage (CCUS) technologies matter to you!

Come and meet Carbaton, our friendly carbon atom. Carbaton was created millions of years ago. It is now one of the most important atoms in our lives. The electricity that we use at home is mainly produced by Carbaton. In power stations, and other places, Carbaton cleverly turns itself into a gas (known as carbon dioxide - CO₂) and escapes into the atmosphere. This causes problems for the planet, some animals and plants could disappear. Help us keep Carbaton on Earth. Come and learn about CCUS, a key set of technologies which will allow us carry on using Carbaton for our usual needs.

City Art Centre, 5th-20th April 2014 – drop-in

Napier University Events for Adults

Forensics and Fiction

Scottish Crime writing is some of the best in the world and readers love the gory and precise details of crime scene forensics. But how does a writer get their facts straight? Join bestselling crime writer Lin Anderson as she discusses the process of writing her successful forensic thriller series with real-life forensic psychologist Dr Kathy Charles of Edinburgh Napier University. Some might call it a night of science, syntax and sin!

<http://www.sciencefestival.co.uk/whats-on/categories/talk/forensics-and-fiction>

The Science in your Science Fiction

The relationship between sci-fi and sci-fact is a complex affair. Works of science fiction have been accused of inaccuracy, scaremongering and damaging the public understanding of science. Conversely, these imagined worlds can also spark debate, challenge ignorance and engage new audiences. Join acclaimed sci-fi author Ken MacLeod for a special writing masterclass looking at how to get your facts right, from initial inspiration to conducting research and pulling it together on paper without derailing the story. The seminar ends with a writing challenge designed to put your new skills into practice.

<http://www.sciencefestival.co.uk/whats-on/categories/workshop/the-science-in-your-science-fiction-how-to-get-it-right>

Napier University Events for Children

Introduction to Scratch

The Scratch platform offers a fantastic, fun and easy to learn first step into computer programming. This beginner's session is for anyone who fancies programming a computer, introducing the basics of Scratch and helping you to edit ready-made projects and build your very own game.

<http://www.sciencefestival.co.uk/whats-on/categories/workshop/introduction-to-scratch>

Introduction to Arduino

Arduino is easy to use and based on flexible hardware and software, making it a fun introduction to computer programming. This session will show you how Arduinos use sensors to detect and respond to changes in their environment, allowing you to create your very own programmes using sound, movement and flashing lights.

<http://www.sciencefestival.co.uk/whats-on/categories/workshop/introduction-to-arduino>

Scratch for Arduino

This session combines two easy to use computer programming platforms in a hands-on workshop. You'll explore the fundamentals of computer programming and develop your own basic interactive application that uses sensors to control a simple game or sound synthesiser.

<http://www.sciencefestival.co.uk/whats-on/categories/workshop/scratch-for-arduino>

University of Edinburgh - Events for Children

Mini Scientists

Pull on your lab coat, pick up your notebook and step into our lab to become a mini scientist. Our Medical Research Council team will help you to learn about DNA, race to match chromosomes, build a cell to take home, create a new flu virus, find ways to make a city healthier and solve hearing problems

<http://www.sciencefestival.co.uk/whats-on/categories/city-art-centre-bookable-event/mini-scientists-1910>

Can You Keep a Secret

Who are the best people to be friends with if you want to learn a secret? And why do your pals seem to have more friends than you? Maths has the answers! Explore the maths of how rumours spread and whether you could be relied on to keep a secret. Perfect for children aged 7-14. Presented by The University of Edinburgh.

<http://www.sciencefestival.co.uk/whats-on/categories/workshop/can-you-keep-a-secret>

Chocolate Alchemy

Calling all chocolate chemists - did you know that the chemical structure of a substance affects its properties? When chocolate is melted and re-hardened it crystallises into a different molecular structure. Carry out experiments to discover differences in the properties of chocolate including changes in texture and taste!

<http://www.sciencefestival.co.uk/whats-on/categories/workshop/chocolate-alchemy>

Farm Detectives

There's an outbreak of disease on the farm but what's the cause and how can we stop it? Be a veterinary scientist for the day and help fellow scientists from The Roslin Institute to investigate what the disease is, where it came from and how it can be treated. Perfect for children aged 10-14.

<http://www.sciencefestival.co.uk/whats-on/categories/workshop/farm-detectives>

Bio-Discoveries

Find out what our amazing fruit flies have been doing in the name of genetic science over the past year, and what other new and exciting discoveries our biologists have made. Then take your turn at the microscope to see what you can find.

<http://www.sciencefestival.co.uk/whats-on/categories/drop-in/bio-discoveries>

Geosciences: Measuring our World

How do we know that our environment is changing? Can you measure how far away something is without a tape measure? Or the temperature of an object without touching it? Learn how geoscientists overcome these challenges to measure our world.

<http://www.sciencefestival.co.uk/whats-on/categories/drop-in/geosciences-measuring-our-world>

What Makes Supercomputers Super

Supercomputers are vital in science, from microbiology to cosmology and even palæontology. Find out what they are, discover what the UK's supercomputer does and make your own computer simulation of a dinosaur and watch it run!

<http://www.sciencefestival.co.uk/whats-on/categories/drop-in/what-makes-supercomputers-super>

Celebrating the Higgs Boson

Edinburgh is proud that Prof Peter Higgs was recently awarded the Nobel Prize for his work in discovering a tiny particle called the Higgs Boson. Chat with our particle physicists to find out what all the fuss is about, detect cosmic rays, and drive a particle accelerator!

<http://www.sciencefestival.co.uk/whats-on/categories/drop-in/celebrating-the-higgs-boson>

Crystal Chemistry

Help our chemists celebrate International Year of Crystallography! Crystals are all around us but how are they made and why are they useful? Grow your own crystals, look at these fascinating structures under the microscope, and discover how crystals can help us understand our world.

<http://www.sciencefestival.co.uk/whats-on/categories/drop-in/crystal-chemistry>

Pop-Up Engineering

Pop-ups may look simple, but they are ingenious engineering mechanisms. Choose your favourite design, transform it from a flat cardboard shape to a magical 3D model, and then decorate it with your own personal touch to take home.

<http://www.sciencefestival.co.uk/whats-on/categories/drop-in/pop-up-engineering>

Dr Bunhead's Easter Bogey Bunny

Bouncing bogeys! It's the Easter bogey bunny. TV's Dr Bunhead (Brainiac, Blue Peter) explores the science of Easter things: chocolate eggs, bunnies and some added bogeys. Featuring exploding eggs, chocolate flame throwers, stunt bunnies fired into space and loads more dangerous science. 'Silly, crazy, dirty, dangerous and magnificent.' *The Daily Telegraph*.

<http://www.sciencefestival.co.uk/whats-on/categories/show/dr-bunhead-s-easter-bogey-bunny>

The Sci-FUN Roadshow

Join the fun and take part in more than fifty incredible interactive science activities. Control lightning, see a hole in your hand, solve a crime, separate (fake!) blood, become part of a human circuit and then relax in our spinning chair.

<http://www.sciencefestival.co.uk/whats-on/categories/drop-in/the-sci-fun-roadshow>

Meet the Medical Scientists

Medical scientists investigate how the human body works to find new ways to treat illness and injury. Chat with our medical scientists to discover how they help keep us healthy, and get hands-on with cutting edge science exploring the heart, brain and more.

<http://www.sciencefestival.co.uk/whats-on/categories/drop-in/meet-the-medical-scientists>

University of Edinburgh - Events for Adults

SciMart

A day long farmers' market with a scientific twist, SciMart brings together food producers, researchers and chefs to reveal the fascinating science behind some of our favourite foodstuffs. With stalls, demos, talks and tasty treats, SciMart brings you a packed menu and food for thought in the form of cooking demos from top Edinburgh chef Mark Greenaway and free, drop in talks from food experts.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/scimart>

The Art of Science

From cutting-edge medical research to the discovery of the Higgs Boson, this exhibition of striking images and objects celebrates the diverse and surprising range of scientific research going on right now at the University of Edinburgh. Be inspired and ponder the science at the heart of so many aspects of our lives.

<http://www.sciencefestival.co.uk/whats-on/categories/exhibition/the-art-of-science>

Behind the Scenes at the Centre for Research Collections

Get behind the scenes of the Centre for Research Collections at the University of Edinburgh on this exclusive tour offering the chance to see the unique scientific collections up close and personal. The event focuses on the cataloguing, conservation and digital imaging of three collections that have recently received Wellcome Trust funding to make them more accessible. The collections explore the development of neurosurgery in Edinburgh (Prof Norman Dott Papers); investigation into human intelligence to improve education (Prof Sir Godfrey Thomson Papers), genetics through the papers of the Conrad Hal Waddington and James Cossar Ewart, and animal genetics through the papers of the Institute of Animal Genetics, the Roslin Institute and associated scientists.

<http://www.sciencefestival.co.uk/whats-on/categories/tour/behind-the-scenes-at-the-centre-for-research-collections-library-tour>

The False Memory Archive

Working with leading scientists from the relatively new field of false memory research, Artist A R Hopwood's work stimulates questions about how our minds construct the past. Drawing upon fascinating research demonstrating our susceptibility to false memories, this exhibition features contemporary artworks and a unique collection of vivid personal accounts of things that never really happened.

<http://www.sciencefestival.co.uk/whats-on/categories/exhibition/the-false-memory-archive>

Latelab: Atmosphere – Soylent Green

Make room, make room! Atmosphere is back, but wait a minute, it's now 2022. Earth is overpopulated, polluted and malnourished, but Soylent Industries has a solution... They can take plankton from the sea and make food, Soylent Green; far more appetising than their red or yellow varieties too.

Starring Charlton Heston and Edward G Robinson, this 1973 science fiction classic was directed by Richard Fleischer. Guest augmentologists will respond with ideas about algaculture and synthetic biology. The tasty twist in the tail will undoubtedly have you gripping the furniture.

<http://www.sciencefestival.co.uk/whats-on/categories/film/latelab-atmosphere-soylent-green>

Latelab: Gastrolab – RGB Cocktails Party

The host of our RGB (Red, Green, Blue) cocktail party is French-American food designer and artist Emilie Baltz. Based in New York and Paris she works at the intersection of gastronomy, performance and the visual arts to stimulate the definition of taste by provoking the five senses in new ways. In this 'Triptych for Enlightened Drinking' you will discover the effects of light and colour on solids (man) and liquids (cocktails) and how they impact human psychology. Real time visuals produced by DJ Steve Gibson will bathe the laboratory with colour to complement each of the three phases of mixology.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-gastrolab-rgb-cocktail-party>

Latelab: The Internet of Things that Matter

How does data change our relationship with physical 'things'? The Internet of Things exploits new technologies to link physical artefacts with data across social and technical networks. Join the Design Informatics Research Group to explore this new technology. From teapots that you can haggle with in Oxfam shops or shelves that shake when earthquakes take place on the other side of the world, to clocks that print you a postcard of something that happened in the past – let's reflect upon the implication on our social lives.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-the-internet-of-things-that-matter>

Latelab: Electric Bookshop – Pressed for Time

Start your presses now. Electric Bookshop brings together people with a common interest in technology, literature, design and publishing. It's a discussion and demonstration forum for literary and technology types, as well as being a great social event.

Learn more about Pressed for Time, a publishing time-machine that provides unexpected and immersive experiences for intrepid book readers. Physically and aesthetically, the 'machine' produces an anachronistic mishmash of all forms of literature.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-electric-bookshop-pressed-for-time>

Latelab: Encounters

Encounters at LateLab takes a hot topic in neuroscience and pairs speakers with different perspectives on a shared theme. In a salon-style evening of presentations, conversation and discussion our experts will share, question each other and debate among themselves and with you, the audience. Fun, informative and often surprising, no two encounters are ever the same but they do all guarantee an evening of cerebral stimulation of the most pleasant kind.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-encounters>

Latelab: The Taste of Blue

What do Richard Feynman and Stevie Wonder have in common? Both have the brain condition synaesthesia which gives rise to sensory connections between unrelated experiences. Enter the mixed-up world of the synesthete where one sense leads to another and the whole world takes on a different meaning. Do numbers have a taste or colours have a smell? Join us on a multimedia and multi-sensory voyage to explore the extra connections in the brain of a synesthete.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-the-taste-of-blue>

Latelab: Gastrolab – Slow Food

This GastroLab will focus on slow food beginning with a screening of Lifecycles by Matthew Moore. Part of the larger effort of the Digital Farm Collective, these short time-lapse films educate consumers on the produce they are purchasing by showing the growing process as it happens in the field.

Simon Yuill will talk about his Stackwalker project, focusing on crofting communities and migrant workers in Scotland's food and fish processing industries. Kate Rich and Kayle Brandon will unpack the secret recipe of cola using essential oils to enable the audience to assemble the drink. Perfect to wash down Black Market Pudding by John O'Shea.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-gastrolab-slow-food>

Latelab: Gastrolab – Open Sauces

Food, culture and the environment have an intricate relationship that extends back to the origin of humans as a social species. To survive, we eat; to eat, we feed the environment that feeds us – food is a product of the reciprocal connection to our ecological habitats.

FoAM look at food from a holistic and systemic perspective. Too often however we eat in haste, forgetting to truly taste food. Tonight we'll focus our minds on the taste of food, with its visual, sonic, olfactory and tactile properties that can energise and invigorate.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-gastrolab-open-sauces>

Latelab: Pecha Kucha

Pecha Kucha Night was devised in Tokyo in February 2003 as an event for young designers to meet, network, and show their work in public. It has turned into a massive celebration, with events happening in hundreds of cities, inspiring creatives worldwide. It is curated in Edinburgh by Gordon Duffy, Principal of architecture practice Studio DuB. Drawing its name from the Japanese term for the sound of 'chit chat', its presentation format is based on a simple but effective idea; 20 images x 20 seconds. You'll be surprised how much you can fit in.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-pecha-kucha>

Latelab: A Look at Laughter

Are you game for a giggle? We often hear that laughter is the best medicine and indeed hearing or seeing someone else laughing fires up the areas of our brain related to imitation and get us ready to laugh too. Laughter is universal amongst humans and is even seen in chimpanzees and gorillas – but how much do you really know about it? We'll investigate why we laugh and hopefully give you plenty of chances to chuckle and chortle.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-a-look-at-laughter>

Latelab: Dialogues

Dialogues emerged in 1999 to fill an aching gap in Edinburgh's music scene with performances by experimental musicians from Scotland, the UK and abroad. Come to Dialogues at LateLab to sample new music and sound design from this ongoing programme of concerts and workshops.

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-dialogues>

Latelab: Casino Scienza

Roll up and roll the dice in our casino with a twist; joining the croupiers will be a crafty group of risk-taking researchers and experts in trickery. Investigate gambling's scientific secrets then have a go on the tables yourself. Does the house always win? What risks are you willing to take when the stakes are high? Learn the difference between the improbable and the impossible and use this knowledge to your advantage – tonight might be your lucky night!

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/latelab-casino-scienza>

Secret of Science Writing

Join writers Barbara Melville and Pippa Goldschmidt to discover the secrets of scientific writing in an interactive workshop which examines a range of writing techniques used by scientists to share knowledge and critique ideas. You'll start off by analysing narratives from scientific press and then learn how to employ precise observation to produce writing rich in detail for use in both fiction and non-fiction.

<http://www.sciencefestival.co.uk/whats-on/categories/workshop/secrets-of-science-writing>

Poisons and Paracetamol

The ubiquitous painkiller paracetamol is the cause of around 50% of poisoning admissions to hospital and approximately 150 deaths each year. Prof Nick Bateman and Dr James Dear lead a panel discussion examining the dark side of this medicine cabinet staple, looking at clinical treatments and social interventions aiming to tackle paracetamol poisoning and speculating on the potential pain relievers of the future.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/poisons-and-paracetamol>

Science and the Fight Against Heart Disease

Directly or indirectly, most of us will be affected by heart disease at some time, and it is the main cause of death in Scotland. But what causes a heart attack and how is science helping to defeat this killer disease? In the first of our 2014 Healthy Lunches series – in which we explore important health-related topics in vibrant lunchtime events – Dr Peter Henriksen and Dr Nick Mills, cardiologists at Edinburgh Heart Centre explore how scientific endeavour and research has driven our understanding of the causes of coronary heart disease and led to the selection of safer and better treatment. Presented by the Royal College of Physicians of Edinburgh.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/science-and-the-fight-against-heart-disease>

The Scart Connection

Which is more significant, a Nobel Prize for scientific discovery or the Turner Prize for art? What is in physics, and what is truth to a silversmith? Join researchers from The University of Edinburgh's School of Physics and Astronomy and Edinburgh College of Art as they present the findings from a unique collaboration. Presenting elements of their research that elaborate the notions of truth, rigour and originality in their respective disciplines, they may even reveal what they learned when they connected the dots between science and the arts. Hosted by Prof Chris Breward, Principal of Edinburgh College of Art.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/the-scart-connection>

A Conversation with Peter Higgs

In 1964, as a young lecturer at The University of Edinburgh, Peter Higgs hypothesised the existence of a special particle - a boson that gives mass to everything in the universe. Fast-forward nearly 50 years and researchers at the European Organisation for Nuclear Research (CERN) recently confirmed the existence of this particle, named the Higgs Boson, leading to them and Peter being jointly awarded the Edinburgh Medal before Peter went on to receive the Nobel Prize in Physics in 2013. Join Prof Higgs in conversation with fellow particle physicist and science writer Prof Frank Close as he discusses his life's work.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/a-conversation-with-peter-higgs-close-up>

Multiple Sclerosis: A Very Scottish Problem

Scotland is recorded as having the highest prevalence of multiple sclerosis in the world, with around 10,000 people living with the condition. But why is this? And what might the sun (or lack of it) have to do with it? Our informative Healthy Lunches series continues with researchers from the Anne Rowling Regenerative Neurology Clinic in Edinburgh exploring the impacts, advances and future outlooks for this condition and Anne Brown, a Scots writer living with Multiple Sclerosis, reading from her informative and comical blog for the MS Society.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/multiple-sclerosis-a-very-scottish-problem>

Party Hard! The Maths of Connections

How many guests need to come to a party to guarantee at least five will know one another or at least five will be mutual strangers? Host Prof Keith Ball, Scientific Director of the International Centre for Mathematical Sciences, talks to Dr Colva Roney-Dougal, Senior Lecturer in Pure Mathematics at the University of St Andrews, about the mathematics of connections; from friendship, through marriage to the spread of disease. Along the way Colva will show how infinity plays some very peculiar tricks and discover some unexpected links between mathematicians and Hollywood stars.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/party-hard-the-maths-of-connections>

Hormones and the Mating Game

All animals reproduce, but what drives this urge? How do we choose a mate? Is libido treatable? Join the Society for Endocrinology and its panel of experts – Profs Philippa Saunders and Gareth Leng from The University of Edinburgh and Dr Richard Quinton, Consultant Endocrinologist from the Newcastle upon Tyne Hospitals NHS Foundation Trust – to discuss whether we are all slaves to our hormones, or whether there's more to what makes us trust, lust, love and cheat.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/hormones-and-the-mating-game>

In Two Minds

As Scotland prepares for September's referendum, this fascinating event, the second in our Scotland Decides series, explores the psychology of decision-making and uncovers the factors that influence our choices. Dr Tiffany Jenkins is joined by speakers including Prof John Curtice, the University of Strathclyde, and Dr Jan Eichhorn of The University of Edinburgh, to reveal how campaign strategies influence voters, the impact of 16 year-old voters, the relationship between informed choice and unconscious bias and how our socio-economic background can affect our decisions.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/in-two-minds>

Making Waves & Turning the Tides

A unique opportunity to visit Scotland's newest major marine research facility. Experience a real marine test in action in The University of Edinburgh's giant wave and current tank, and find out about the past, present and future of marine renewable energy research and potential in Scotland with Prof Robin Wallace of The University of Edinburgh and Stuart Brown of FloWave TT.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/making-waves-turning-the-tides>

Synthetic Aesthetics: How Would You Design Nature

A multimedia, multi-disciplinary evening bringing together scientists and artists to explore the new science of synthetic biology through short talks and demonstrations. Find out more about its mechanisms and applications through models, animations and dance as the process of engineering design with DNA is brought to life. Featuring Prof Alistair Elfick, Professor of Synthetic Biological Engineering at The University of Edinburgh.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/synthetic-aesthetics-how-would-you-design-nature>

A 'Good Death'

Advances in modern medicine and increased life expectancy mean we often see death as a negative outcome of our lives, but should we really be planning ahead? Dr David Harrison, Professor of Pathology at The University of St Andrews discusses how our bodies die and Dr Kirsty Boyd, a Consultant in Palliative Medicine at NHS Lothian and The University of Edinburgh, explores how scientific knowledge and open discourse can encourage us all to accept dying and achieve a 'good death'.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/a-good-death>

Triple Helix Referendum Debate

What would an independent Scotland mean to students and researchers? A range of speakers discuss the implications independence could have in terms of funding, academic opportunities, and the international reputation of Scottish universities. This event will be hosted by The Triple Helix, a student society at The University of Edinburgh. Join us for this dynamic discussion followed by a Q&A session.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/triple-helix-referendum-debate>

From Yawn to Dawn

We spend about a third of our lives asleep, and yet we still don't fully understand what sleep is and why we need it. Dr Renata Riha, Consultant in Sleep Medicine at the Royal Infirmary Edinburgh leads a panel of experts in an engaging interactive discussion with the audience to examine the place of sleep in our lives. What is our relationship with the land of nod? What makes you sleepy, and what are the common causes of sleepiness and sleep disorders? This event is guaranteed NOT to send you to sleep!

<http://www.sciencefestival.co.uk/whats-on/categories/talk/from-yawn-to-dawn>

Tam Dalyell Prize Lecture: My Li-Fi Revolution

In this year's Tam Dalyell Lecture, Prof Harald Haas, Chair of Mobile Communications at The University of Edinburgh, reveals an amazing innovation that could change wireless communications forever. The Li-Fi system uses standard light-emitting diodes (LEDs) to transmit electronic data signals, which will enable users to access the internet through the ordinary lighting systems in schools, workplaces and homes. This revolutionary invention has the potential to bring cheap, energy efficient and super-secure wireless access to the world. Join Harald to hear about how the revolution started here in Edinburgh.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/tam-dalyell-prize-lecture-my-li-fi-revolution>

A Very Short Introduction to ... Bacteria

More Food for Thought in your lunch break. Get your teeth into some fascinating science with Prof Sebastian Amyes from The University of Edinburgh as he introduces bacteria: their origins and evolution and their function in the environment and disease, including the ever-increasing challenges of confronting bacterial resistance to antibiotics.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/a-very-short-introduction-to-bacteria>

The Mystery of the Pickle Jar

Film, television and literature have made us increasingly familiar with forensic medicine and science. This fascinating interactive presentation by Dr Tim Squires from The University of Edinburgh requires no prior knowledge or magnifying glass, but will give enquiring minds the chance to explore the scientific principles behind the fictional glamour, assessing the evidence and discovering the complicated analytical techniques that might solve The Mystery of the Pickle Jar.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/the-mystery-of-the-pickle-jar>

Stroke: Information and Rehabilitation

Around one in six people In Scotland will have a stroke at some point, with about 12,500 having one every year. The damage caused by a stroke can be widespread and long lasting, and rehabilitation can be slow but it is the topic of much on-going scientific research. Join Dr Nick Ward from the stroke research group at the UCL Institute of Neurology as he explores the reorganisation of brain networks to support recovery; and hear from Dr Gillian Mead from The University of Edinburgh who will discuss the importance of exercise after a stroke.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/stroke-information-and-rehabilitation>

Virus Hunters

The quest to uncover the origins of HIV took in African rain forests, hospital intensive care wards and research laboratories and involved painstaking research, worldwide collaboration, state-of-the-art laboratory experimentation and risky fieldwork. Edinburgh-based microbiologist and author Prof Dorothy Crawford shares this complex and fascinating scientific detective story and is joined in discussion by leading evolutionary biologist Prof Paul Sharp.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/virus-hunters>

Artificial Intelligence – What to Think

Join our panel of specialists from across science, theology and science fiction writing as they explore artificial intelligence (AI). Prof Steve Fuller, of the University of Warwick, Dr Gavin Merrifield of the University of Glasgow and science fiction writer Charles Stross consider what AI means to their disciplines and ponder its implications for the way we understand the world, humanity and meaning. Hosted by Donald J MacDonald, clinical biochemist and Elder of the United Free Church of Scotland and facilitated by Sue Rigby, geologist, and Vice Principal of Learning and Teaching at the University of Edinburgh.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/artificial-intelligence-what-to-think>

Science Ceilidh

Bring your dancing shoes and thinking caps for a ceilidh like nothing you've ever experienced before! Join Peter Lovatt (aka Dr Dance), neuroscientist Lewis Hou and his special science ceilidh band for an evening full of your favourite dances, rejigged by the addition of a twist of science. Discover what's happening in your head whilst busting moves in the Canadian Brain Dance, simulate your immune system in the Dashing White Blood Cell, and replicate your DNA by swinging base-pairs in the Orcadian Strip-the-Helix. The science and steps behind each dance will be called throughout, so this tour-de-force of your body is bound to move you!

<http://www.sciencefestival.co.uk/whats-on/categories/interactive/science-ceilidh>

When Science and the Media Collide

Read all about it! The media shapes public attitudes to science, but what role should they play in reporting it? When does leading us through the research becoming misleading? And where does the responsibility lie when things go wrong? With examples from controversial topics such as GM foods and fracking, researcher Prof Joyce Tait of the Innogen Institute, Edward Sykes from London's Science Media Centre and journalist Peter Ranscombe probe the reality and challenges of this crucial but sometimes fractious relationship.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/when-science-and-the-media-collide>

Philosophy in the Playground: Does Technology Make you Smarter?

Technology not only helps us, it also changes us. Children now carry around sophisticated computers in their pockets. Does this change them for the better (make them smarter?) or worse? Dr Mark Sprevak, Lecturer in Philosophy of Mind & Cognition at the School of Philosophy, Psychology and Language Sciences, University of Edinburgh, will guide our discovery of some of the surprising ways in which technology changes our children.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/philosophy-in-the-playground-does-technology-make-you-smarter>

Expert Witness

Forensic medicine is without a doubt one science's most fascinating subjects. Join Prof Antony Busuttill, Regius Professor of Forensic Medicine at the University of Edinburgh and Forensic Medical Examiner, best known to the public as the pathologist who dealt with the horrors of the Lockerbie bombing and the Dunblane Primary School shooting, as he talks about this and other aspects of his work.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/expert-witness>

The Minotaur Forum: A Lay-Person's Guide to Genetically Modifying Your Own Monstrous Hybrid

Imagine you wanted to create a monster. Today. Maybe tomorrow (need to plan first). What would be required? Have you completed the necessary risk assessments? Join leading scientists from the universities of Edinburgh and Reading – working in the fields of cognitive science, evolutionary biology, and augmented intelligence – for a fascinating insight into the limits of human thought and being, and an entertaining look at what would be required to be a 'modern day Frankenstein'.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/the-minotaur-forum-a-lay-person-s-guide-to-genetically-modifying-your-own-monstrous-hybrid>

Cosmologies, Faith and the Environmental Crisis

How do different cosmologies affect the way we treat the environment? Chair Dr Jeremy Kidwell of The University of Edinburgh leads speakers Dr Fazlun Khalid of the Islamic Foundation for Ecology and Environmental Studies and Dr Mark Harris of the School of Divinity at The University of Edinburgh in discussion with other guests as they examine how the cosmologies of the world's religions affect human behaviour, and what this means for evidence-based science. Then have your say as he opens the discussion up to the floor and asks what you think, believe and feel.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/cosmologies-faith-and-the-environmental-crisis>

Choosing a Healthy Future

On 18 September Scotland must make a decision: remain part of the UK or chose independence. Our Scotland Decides series asks what this might mean for some key science-related issues and the first topic under the microscope is healthcare. Broadcaster Lesley Riddoch is joined by Dr James Smith of the Innogen Institute; Dr Richard Simpson MSP and Dr Jean Turner, former independent MSP and Chair of the Scottish Patients Association, along with policy makers and health professionals, to consider the health challenges faced by the population. They will examine how the people of an independent Scotland might want their healthcare to be provided, discussing the future of free prescriptions, medical training and hospital services.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/choosing-a-healthy-future>

Spotlight On: Minerals and Mobile Phones

Did you know that mobile phones contain a small amount of almost all the chemical elements? Sourced from rare earth materials, their extraction and production has serious human and ecological impact. Join curator Dr Rachel Walcott and Prof Simon Harley from the University of Edinburgh to find out more.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/spotlight-on-minerals-and-mobile-phones>

The Blight of Ersatz Neuroscience

The 'neuro' prefix is nowadays very fashionable. The growing interest in applying our knowledge of the human brain to different fields has resulted in the development of a number of new practices – some good, some bad, and some just crazy. Join The University of Edinburgh's Prof Sergio Della Sala as he explains how some enthusiastic scientists have over-simplified the findings from neuroscience and over-interpreted the outcome, giving rise to a number of tall tales on how the brain works.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/the-blight-of-ersatz-neuroscience>

Cells to Civilisation

What are the connections between evolving microbes, an egg that develops into an infant, and a child who learns to walk and talk? Join Enrico Coen, shortlisted author for the 2013 Royal Society Winton Prize for Science Books, as he explores the four great life transformations – evolution, development, learning, and human culture – with Andrew Millar, Chair of Systems Biology at The University of Edinburgh.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/cells-to-civilizations>

What Scientists Read

What DO scientists read? And what role does literature play in contemporary scientific thought and practice? Drawing on results from the ongoing What Scientists Read project, acclaimed author Alastair Reynolds and BBC New Generation Thinker Dr Sarah Dillon will be joined by two of the project's interviewees to discuss scientists' reading habits. Submit your 'bookshelfies' in advance to info@whatscientistsread.com and join the discussion!

<http://www.sciencefestival.co.uk/whats-on/categories/talk/what-scientists-read>

Physics to Blow Your Mind

Join top astrophysicists from the Royal Observatory Edinburgh and The University of Edinburgh for a curious journey through some of the most mysterious and intriguing secrets of the cosmos. Dr Catherine Heymans has used some of the world's best telescopes to map out the invisible dark matter in our Universe and will explore theories around this dark enigma. Then Prof Andrew Liddle will take you on a mind-bending journey through theories of the multiverse; a place where the laws of nature are not as we know them to be and which may even contain many perfect copies of ourselves.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/physics-to-blow-your-mind>

The Chemistry Show

How can we make cars that don't harm the environment? What happens when things get really cold? And why should you cover your ears when Paul Murray and Robin Andrews light a match? Prepare yourself for bangs, colours, flames and foam in this vibrant jam packed show. Presented by The University of Edinburgh.

<http://www.sciencefestival.co.uk/whats-on/categories/show/the-chemistry-show-1871>

Behind the Scenes at the Centre for Research Collections – Meet the Expert, David Gow and Sethu Vijayakumar

Hear from the experts on how they currently use materials in the Centre for Research Collections at The University of Edinburgh and learn about the implications for the future of their research.

In this talk, hear from David Gow, inventor of the bionic hand, and Sethu Vijayakumar, Professor of Robotics at the University of Edinburgh. The discussion will focus on the development of the bionic hand, using some of Gow's own research and development papers held at the University, and will explore the future of prosthetics and robotics with the aid of sample bionic hands.

Presented by The University of Edinburgh.

<http://www.sciencefestival.co.uk/whats-on/categories/talk/behind-the-scenes-at-the-centre-for-research-collections-meet-the-expert-david-gow-and-sethu-vijayakumar>